



**CTRL**  
SYSTEMS

**Innovative Ultrasound Solutions  
For Non-Destructive Testing  
& Condition-Based Monitoring**

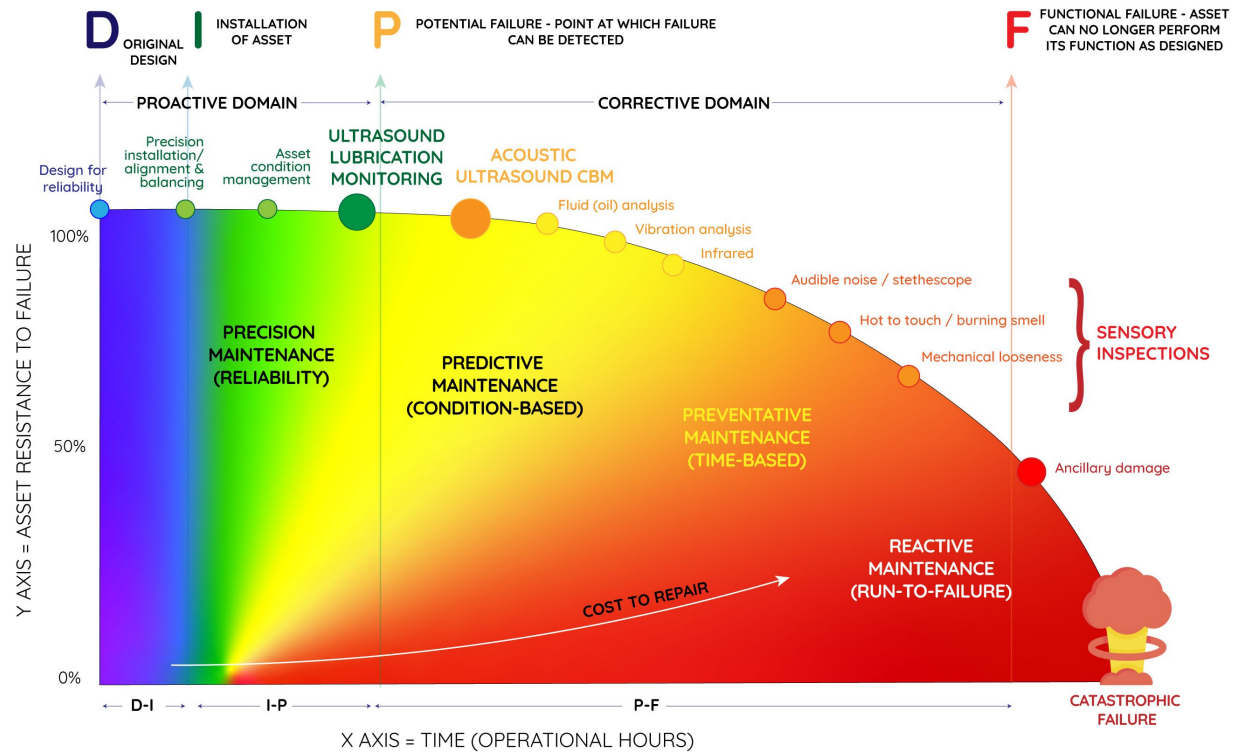


# CTRL SYSTEMS

## Acoustic Ultrasound is the earliest indicator of an asset's change in conditions.

### WHY ULTRASOUND?

Acoustic ultrasound technology is one of the first lines of defense against asset failure. As an important component in a reliability-centered maintenance program (RCM), acoustic ultrasound enables users to monitor asset conditions and take proactive steps to maintain efficient, on-time operation. Acoustic Ultrasound Condition-based Monitoring (CBM) offers the earliest indicator of change in an asset's operating conditions. In the case of certain low-voltage electrical applications, acoustic ultrasound can be a more reliable indicator of electrical faults than even infrared technology.





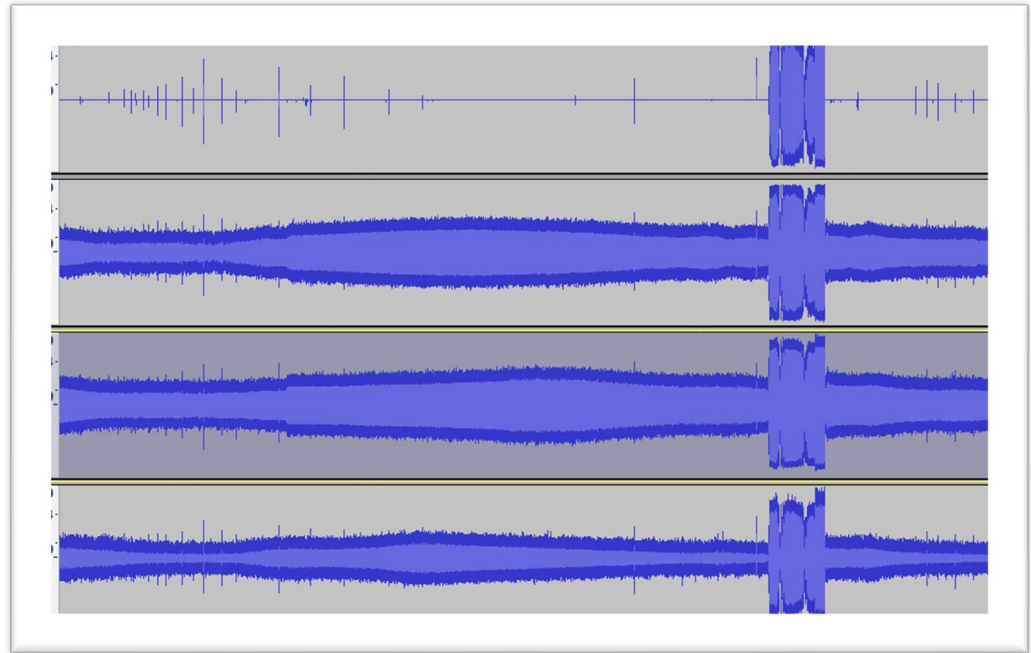
**CTRL**  
SYSTEMS

## WHY CTRL SYSTEMS?

The CTRL UL101 Ultrasound Listening Device (ULD) has the highest signal-to-noise ratio in the industry. The superior sound quality of CTRL-manufactured hardware is ideal for applications ranging from compressed air/vacuum leak detection to electrical fault detection.

Combined with the InCTRL cloud-based data management platform, the UL101 is a complete condition-based monitoring (CBM) solution for any organization and a valuable cornerstone for reliability programs around the world.

## CTRL UL10 1 (Top) vs. Competitive Devices



## SELECT CTRL CLIENTS

INTERNATIONAL  PAPER



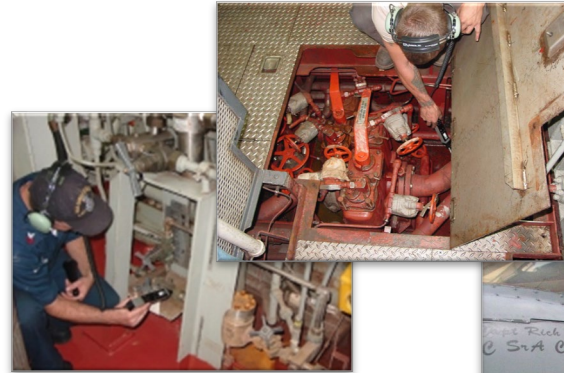


# CTRL SYSTEMS

## SUPPORT FOR AEROSPACE & DEFENSE

CTRL has worked with the following government agencies/contractors and private contractors to help them vet, recommend, and integrate CTRL-developed technologies for over 100 applications:

- **NASA**  
International Space Station  
Shuttle Launches ('01 – '21)
- **Lockheed Martin**  
F-35 Joint Strike Fighter
- **USAF/United States Marines**  
Legacy Aircraft, including F-16, C-130
- **United States Navy**  
Shipboard VCHT  
All F-5 Squadrons, AV8, P8 & others  
Fire Mains & Seawater Valves  
Ongoing Testing & Expansion
- **Boeing Commercial Airplanes (BCA)**  
Published in AMM for all  
BCA Jet Aircraft (737 to 787)





# CTRL SYSTEMS

## SUPPORT FOR POWER & ELECTRICAL APPLICATIONS

CTRL has a long history of collaboration with clients in the electrical power generation, transmission, and distribution sectors.

### • Power Generation

Implemented in hundreds of power plants U.S., Canada, Mexico, Colombia, China, Cambodia, India and others worldwide

### • Power Transmission

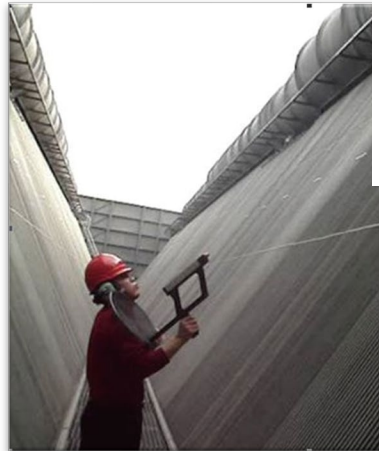
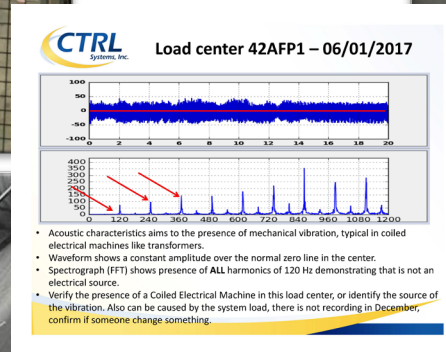
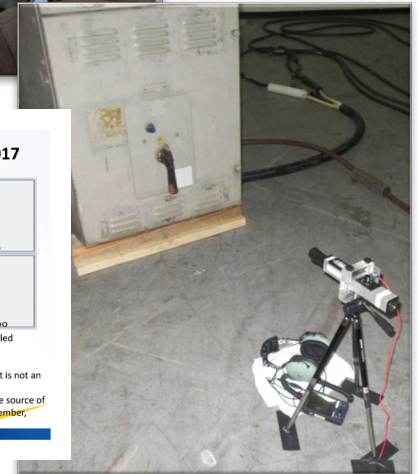
Power line inspection with PowerBeam 300 Integrated drone inspection in development

### • Continuing Research & Integration

Penn State ALR Man-Tech  
Boeing Charlie Works Team  
Global Commercial clients

### • On going Collaboration with clients

Addressing the ongoing development based on lessons learned





# CTRL SYSTEMS

## COMPONENTS

CTRL offers a complete ultrasound CBM solution today, encompassing best-in-class hardware, industry-first database management, reporting, and analysis, and comprehensive training options for end users. CTRL technology is in a constant state of evolution, as we move further into the automated IoT space.

- **UL101 Ultrasonic Listening Device**  
Highest Signal-to-noise Ratio  
Vetted and Recommended by DoD
- **InCTRL**  
Recording & Database Management  
Field Reports, Email Alerts, Analysis
- **Training (On-Site & Virtual)**  
Desktop/Mobile Training Portal  
A.I. Customizes Experience to User  
On-Site QuickStart & Certification
- **In Active Development**  
Mounted 24/7 Monitoring w/ A.I.  
Real-time identification/classification reporting



**InCTRL**  
Cloud-Based Recording, Database  
Management, Reporting & Analysis



**UL10 1 Kit (NSN Listings & GSA)**  
Industry-Leading Handheld Sensor

**InCTRL e-Learning Portal**  
Desktop and Mobile Training Platform



# CTRL Systems Inc. Acoustic Ultrasound Condition-Based Monitoring (CBM) Systems



## CTRL Systems Inc.

1004 Littlestown Pike, Suite H  
Westminster, MD 21157  
(410) 876.5676  
[www.CTRL.systems](http://www.CTRL.systems)

## POC: Robert Roche, Founder & CEO

Phone (direct/mobile): (443) 847.5103  
Email: [broche@ctrlsys.com](mailto:broche@ctrlsys.com)

Cage Code 62373  
Veteran-owned small business

- Over 20 years of Proven success and continuing integration w/ NASA, NAVSEA, NAVAIR, USAF, Air Guard, Army
- PMS Activities (Estimated **15:1 ROI** after implementation)
- NAVSEA '04 report identified over 100 potential applications
- VCHT – integrated for shipboard vacuum systems inspection
- Provides benefits to retro-fitting & overhaul (i.e. USS Nimitz & SUPSHIP)
- Used on F-35, KC-46, C-130, AV8, F-5, P-3, P-8, EA-6B & other legacy aircraft
- Full NSN listing for all DoD vetted/recommended CTRL Systems kits & parts



## Components (Hardware, Software, Training, In Development)

- **UL101 Kits** – Handheld sensor kits
  - **best signal-to-noise ratio** on the market
  - Ruggedized, 5-Year Limited Warranty
  - NSN Listings and GSA Availability for all kit configurations
- **In Active Development** – 24/7 wireless mounted sensor (2021 release)
  - **equal or better** signal-to-noise ratio to UL101 handheld sensors
- **InCTRL** – cloud-based database management software with mobile signal capture, sound analysis, and reporting.
- **PowerBeam 300** – parabolic accessory aids in long-distance signal capture and user safety
- **InCTRL e-Learning** – online learning platform with mobile and desktop access; A.I. customizes experience to each learner, making for a more intuitive experience with increased retention
- **In-person/on-site training** – classroom, hands-on, certification
- Vetted and Integrated for condition assessment of Mechanical systems (bearing/gearboxes), Electrical systems, Steam/valve systems, Pressure/Vacuum Systems, Hydraulic Systems

## BENEFITS to Time, Cost, Safety, Life Cycle

- **ACOUSTIC ULTRASOUND is earliest indicator of a change in conditions for mechanical, electrical, hydraulic and valve/steam applications**
- Ultrasound Condition Based Monitoring (CBM), complete systems for fast field integration
- Electrical applications vetted & recommended by Penn St. ARL show a 15:1 ROI to Improvement life cycle cost & Safety
- Aviation apps which cut AOG times & cost which improve readiness % and Aircraft availability
- Compress air energy cost reduced by over 20%
- Integration improves safety to all technicians work task
- **Reduction** in manpower and time to safely do current PSM task
- New AI to help **identify/classify** nature of change in condition aimed to address NFF events